ABSTRACT OF THE INVENTION

A system and method of providing for cardiac pacing which incorporates modulation of the pacing rate in order to minimize variations in ventricular power output, e.g., variation related to patient respiratory phases. In a preferred embodiment, pacing rate is increased during inspiration relative to expiration, to restore a measure of the normal rate modulation which occurs in a normal person. Patient respiration is monitored and a respiration signal is processed to determine the timing of rate modulation. Parameters representative of respiratory changes, such as right ventricular volume and right ventricular blood pressure are also monitored and, together with respiration amplitudes changes, are used to determine an incremental rate signal for controlling the extent of rate variation. Heart rate and patient activity are also sensed, to provide further control of rate modulation, with maximum modulation being provided when the patient is sleeping, and minimal or no modulation being provided when the patient is active. The system of this invention is applicable in combination with conventional pacing systems, or can be adapted to special clinical applications.